BANGOR INDUSTRIES EMERGENCY RESPONSE
BANGOR, MICHIGAN
DATA VALIDATION REPORT

Date: September 19, 2011
Laboratory: STAT Analysis Corporation (STAT), Chicago, Illinois
Laboratory Project #: 11080948
Data Validation Performed By: Lisa Graczyk, Weston Solutions, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START)
Weston Analytical Work Order #/TDD #: 20405.016.001.1586.00/S05-0001-1108-033

This data validation report has been prepared by WESTON START under the START III Region V contract. This report documents the data validation for three water samples collected for the Bangor Industries Site that were analyzed for the following parameters and U.S. Environmental Protection Agency (U.S. EPA) methods:

- Volatile Organic Compounds (VOC) by SW-846 Method 8260B
- Semivolatile Organic Carbons (SVOC) by SW-846 Method 8270C and 8270C Selected Ion Monitoring (SIM)
- Total Metals by SW-846 Methods 6020 and 7470A
- Cyanide by SW-846 Method 9012A
- Toxicity Characteristic Leaching Procedure (TCLP) TCLP Metals by SW-846 Methods 1311, 6020, and 7470A
- pH by Method 150.1

A level II data package was requested from STAT. The data validation was conducted in general accordance with the U.S. EPA "Contract Laboratory Program National Functional Guidance for Superfund Organic Methods Data Review" dated June 2008 and "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" dated October 2004. The Attachment contains the results summary sheets with the hand-written qualifiers applied during data validation.

Data Validation Report
Bangor Industries Site
STAT Analysis Corporation
Laboratory Project #: 11080948

VOCs by SW-846 METHOD 8260B

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
CRF-1	11080948-001	Water	8/26/2011	8/29/2011
CRF-1D	11080948-002	Water	8/26/2011	8/29/2011
CRF-2	11080948-003	Water	8/26/2011	8/29/2011

2. Holding Times

The samples were analyzed within the required holding time limit of 14 days from sample collection.

3. Blanks

Method blanks were analyzed with the VOC analyses and were free of target compound contamination above the reporting limit.

4. Surrogate Results

The surrogate recovery results were within the laboratory-established quality control (QC) limits.

5. Laboratory Control Sample (LCS) Results

The LCS recoveries were within laboratory QC limits.

6. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

An MS and MSD were not analyzed with the samples (extra sample volume was not submitted). No qualifications required for this omission.

7. Field Duplicate Results

Sample CRF-1D is a field duplicate of sample CRF-1. All results except 2-butanone were non-detect. The relative percent difference (RPD) between the field duplicate and parent sample result for acetone was 4 percent which is acceptable. There was good correlation between the field duplicate and parent sample.

8. Overall Assessment

The VOC data are acceptable for use based on the information received.

SVOCs BY SW-846 METHOD 8270C AND 8270C SIM

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Prepared	Date Analyzed
CRF-1	11080948-001	Water	8/26/2011	8/29/2011	8/29/2011
CRF-1D	11080948-002	Water	8/26/2011	8/29/2011	8/29/2011
CRF-2	11080948-003	Water	8/26/2011	8/29/2011	8/29/2011

2. Holding Times

The samples were analyzed within the required holding time limit of 7 days from sample collection to extraction and 40 days from extraction to analysis for soil samples.

3. Blanks

Method blanks were analyzed with the SVOC analyses. The method blanks were free of target compound contamination above the reporting limit.

4. Surrogate Results

The surrogate recoveries were within the laboratory-established QC limits.

5. LCS Results

The percent recoveries for the LCS and LCS duplicate (LCSD) results were within the laboratory-established QC limits except for as follows.

In the SVOC SIM analysis, most of the compounds were detected low in the LCSD but were within the QC limits in the LCS. Detected results for these compounds were flagged "J" and the quantitation limits for non-detected results were flagged "UJ" as estimated. In addition the RPD QC limit was exceeded for several compounds. Detected results for which the RPD limit was exceeded were flagged "J" as estimated.

6. MS and MSD Results

An MS and MSD were not analyzed with the samples (extra sample volume was not submitted). No qualifications required for this omission.

7. Field Duplicate Results

Sample CRF-1D is a field duplicate of sample CRF-1. All results were non-detect SVOCs indicating good correlation between the field duplicate and parent sample.

8. Overall Assessment

The SVOC data are acceptable for use as qualified based on the information received.

TOTAL METALS BY SW-846 METHODS 6020 AND 7470A

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
CRF-1	11080948-001	Water	8/26/2011	8/29/2011 – 8/30/2011
CRF-1D	11080948-002	Water	8/26/2011	8/29/2011 – 8/30/2011
CRF-2	11080948-003	Water	8/26/2011	8/29/2011 – 8/30/2011

2. Holding Times

The samples were analyzed within the required holding time limit of 28 days from sample collection to analysis for mercury and 180 days from sample collection to analysis for all other metals.

3. Blank Results

Method blanks were analyzed with the total metals analysis. The blanks were free of target analyte contamination above the reporting limits. There was a minor detection of antimony below the reporting limit; however, the detected sample result was much greater requiring no qualification.

4. LCS Results

The LCS recoveries were within the laboratory-established QC limits for target analytes except for antimony which was detected high. The one detected result for antimony was flagged "J" as estimated.

5. MS and MSD Results

A site-specific MS and MSD were not analyzed with the samples (extra sample volume was not submitted). No qualifications required for this omission.

6. Field Duplicate Results

Sample CRF-1D is a field duplicate of sample CRF-1. The RPDs for detected metals ranged from 5 to 15 percent which is acceptable. There was good correlation between the field duplicate and parent sample.

7. Overall Assessment

The metals data are acceptable for use as qualified based on the information received.

TCLP METALS BY SW-846 METHODS 1311, 6020, AND 7470A

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
CRF-1	11080948-001	Water	8/26/2011	8/29/2011 – 8/30/2011
CRF-1D	11080948-002	Water	8/26/2011	8/29/2011 – 8/30/2011
CRF-2	11080948-003	Water	8/26/2011	8/29/2011 – 8/30/2011

2. Holding Times

The samples were analyzed within the required holding time limit of 28 days from sample collection to analysis for mercury and 180 days from sample collection to analysis for all other metals.

3. Blank Results

Method blanks were analyzed with the TCLP metals analysis. The blanks were free of target analyte contamination above the reporting limits. There were minor detections of TCLP chromium and TCLP lead below the reporting limit in the method blank. Because the sample results were greater than the reporting limit, no qualifications were applied.

4. LCS Results

The LCS recoveries were within the laboratory-established QC limits for target analytes.

5. MS and MSD Results

A site-specific MS and MSD were not analyzed with the samples (extra sample volume was not submitted). No qualifications required for this omission.

6. Field Duplicate Results

Sample CRF-1D is a field duplicate of sample CRF-1. All results were non-detect TCLP metals indicating good correlation between the field duplicate and parent sample.

7. Overall Assessment

The TCLP metals data are acceptable for use based on the information received.

GENERAL CHEMISTRY PARAMETERS (Total Cyanide by SW-846 Method 9012A and pH by Method 150.1)

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
CRF-1	11080948-001	Water	8/26/2011	8/29/2011 – 8/30/2011
CRF-1D	11080948-002	Water	8/26/2011	8/29/2011 – 8/30/2011
CRF-2	11080948-003	Water	8/26/2011	8/29/2011 – 8/30/2011

2. Holding Times

The holding times for all analyses are acceptable.

3. Method Blank

A method blank was analyzed with the cyanide analysis and was free of cyanide above the reporting limits.

4. LCS Results

An LCS was analyzed with the cyanide analysis. The LCS recovery was within QC limits.

5. Field Duplicate Results

Sample CRF-1D is a field duplicate of sample CRF-1. The cyanide results were non-detect in the field duplicate and parent sample and the pH results were the same in the field duplicate and parent sample. There was good correlation between the field duplicate and parent sample.

6. Overall Assessment

The general chemistry data are acceptable for use based on the information received.

ATTACHMENT

STAT ANALYTICAL CORPORATION
RESULTS SUMMARY WITH QUALIFIERS